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## HIGHLIGHTS/SUMMER 1975

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**FAMILY ECONOMICS REVIEW** is a quarterly report on research of the Consumer and Food Economics Institute and on information from other sources relating to economic aspects of family living. It is prepared primarily for home economics agents and home economics specialists of the Cooperative Extension Service.

Authors are on the staff of the Consumer and Food Economics Institute unless otherwise noted.

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# SERVICE-LIFE EXPECTANCY OF HOUSEHOLD APPLIANCES

Katherine S. Tippet and Marilyn Doss Ruffin

## The Estimates

The USDA has developed estimates of the service-life expectancy under one owner for seven major household appliances (see chart). The estimates show current practice in the use of appliances, indicating how long, on the average, households keep each appliance; not how long the appliance could have been made to last.

Separate estimates are given for appliances acquired new and for those acquired used; new and used are not additive. The service-life expectancy under one owner for appliances obtained new was highest for freezers (20 years) and lowest for washers and dishwashers (11 years). Items obtained used had service lives about one-third to two-thirds as long as the same items obtained new. Such comparison may be helpful to families in making replacement decisions, particularly when the appliance must be replaced shortly before a change of residence or if for some other reason a short period of use is anticipated.

The actuarial or current-life table method was used in developing the estimates. The method's best-known use is in estimating the life expectancy of persons in the population. The actuarial table summarizes the mortality experience of a population group. From the probabilities of surviving the individual years of the lifespan, average life expectancy is calculated. The average reflects the combined current experience of all age groups. While there are several approaches simpler than the actuarial method that can be used to estimate average service life of household appliances, the actuarial method is preferred as it (a) minimizes the effect of trends and variations in appliance sales and inventory, and (b) considers the longevity of items still in use as well as those that have been discarded.

Life tables for the human population are constructed from census data, from public records of births and deaths, or from insurance statistics. Since no such data source is regularly available for the appliance population, data were collected in a special nationwide survey of nearly 12,000 households in order to estimate

average service-life expectancy. Information on appliances owned on July 1, 1972, and on those discarded during the preceding 12 months was collected for the Consumer and Food Economics Institute as a supplement to the July 1972 Quarterly Survey of Consumer Buying Expectations of the U.S. Department of Commerce, Bureau of the Census.

The estimates given here update estimates made in four USDA studies between 1957 and 1961.<sup>1</sup> The 1972 service-life expectancies were, in most cases, almost identical to the service-life expectancies obtained in the earlier studies. Where differences in service life were observed, the differences were not statistically significant and may have been due to sampling variation rather than to any change in the average length of time families keep their appliances. A more detailed discussion of the methodology used in this study and a comparison of this study and the earlier ones appears in the March 1975 issue of the HOME ECONOMICS RESEARCH JOURNAL.<sup>2</sup>

## Using Service Life Estimates in Budgeting

The estimates of service life reflect the replacement practices of families and are particularly suitable for use in developing family budgets on a long-term basis and as an aid in deciding whether to own an appliance or to obtain a necessary service in some other way.

Long-term budget planning. Planning ahead for the replacement or first-time purchase of a major appliance may mean: (1) Saving in advance to pay cash; or (2) planning for the purchase on credit, thereby increasing the part of the monthly budget allocated for installment payments. Advance planning is especially

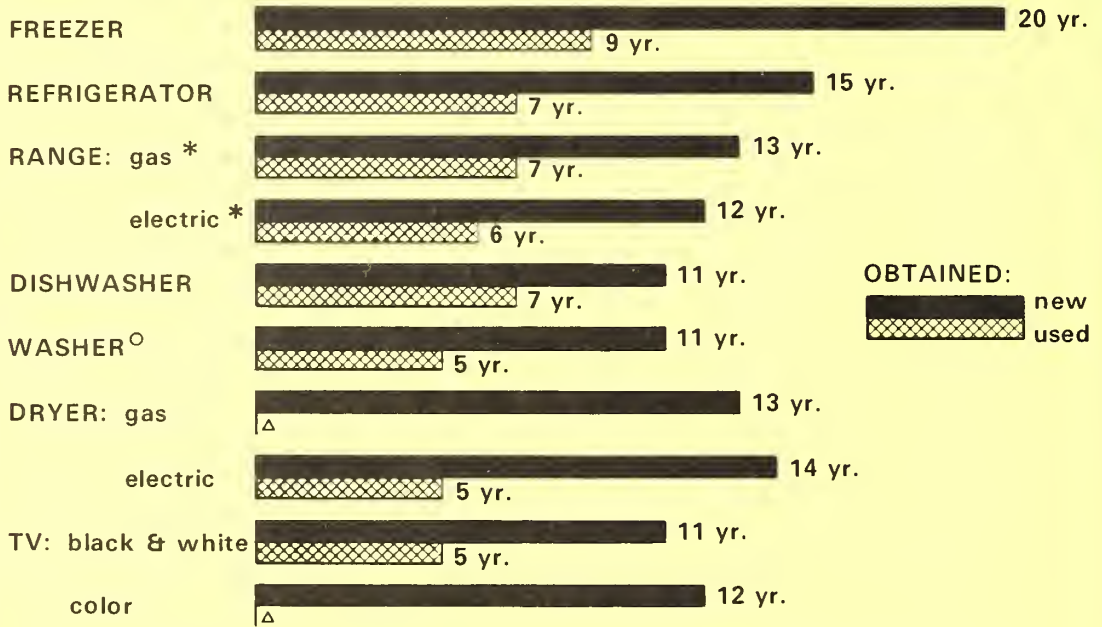
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<sup>1</sup>Pennock, J.L. Planning ahead for the buying of major equipment. Paper presented at the 40th Annual Agricultural Outlook Conference, 1962. Consumer and Food Economics Institute, Agricultural Research Service, USDA.

<sup>2</sup>Ruffin, M.D., and Tippet, K.S. Service-life expectancy of household appliances: New estimates from the USDA. *Home Econ. Res. Jour.* 3(3):159-170. 1975.



# LIFE OF APPLIANCES



EXPECTED YEARS OF USE BY ONE OWNER. CONSUMER AND FOOD ECONOMICS INSTITUTE SURVEY, JULY 1972.

\* FREESTANDING    <sup>o</sup> AUTOMATIC    Δ INSUFFICIENT DATA

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important in times of inflation when the family budget is subject to pressure from many sources.

The estimates of service-life expectancy presented here are useful for families already owning or planning to own an appliance who need to know how soon they are likely to replace the item, how much it will cost, and whether it would be better to purchase a new or a used appliance. The estimates give an idea of how long families keep major household appliances on the average. However, the survey showed wide differences among families; some appliances were discarded within a year of purchase; some were retained in service for more than 30 years. Families may choose to replace their appliances for a variety of reasons: Availability of new convenience or luxury features; changes in equipment needs over the family life cycle; or frequent and expensive repairs. Recent experiences or expectations for the future will also affect the timing of a replacement and the decision to purchase a new or a used item. For example,

appliances acquired with the purchase of an existing house may not fit the needs and preferences of the family and may be replaced early, or a family desiring to acquire appliances but planning a move to a new home may postpone the purchase until after the move or purchase a used appliance for interim use.

Although the prices of appliances will probably increase in years to come, an estimate of the amount of money needed for replacement may be obtained by pricing an item or items similar to those that will be purchased and adjusting for possible price increases. The cost of appliances has risen moderately in recent years compared with price increases for many other items. Between 1954 and 1966 the Consumer Price Index (CPI) actually declined for washing machines, refrigerators, and televisions (see table).

The CPI measures changes in prices of a market basket of items. The content of this market basket is kept unchanged as much as possible. When a price change for an item is accompanied by a change in the quality of the item,

the index is adjusted for the changed quality. This procedure accounts for declines in an index while the price of that item, in absolute terms, may have risen. The moderate growth in recent years of the indexes for appliances may reflect general improvements in these appliances along with an increase in the number of features offered as standard equipment that were once options.

Deciding whether or not to own an appliance. The cost of doing laundry at home versus the cost in a self-service laundry, or the cost of food prepared from food that has been homegrown or that has been purchased in quantity and frozen in a home freezer versus the cost of food purchased commercially as needed for consumption, may play a major part in a family's decision to own or not to own a washer and dryer, or a freezer. The estimates of service-life expectancy provide part of the information needed to compute the total costs involved in owning and operating these appliances at home.

The expected lifespan of the appliance must be known in order for the appliance cost to be allocated as a fixed cost to individual loads of wash done or to pounds of food frozen. For example, in figuring the cost of washing clothes at home, a share of the cost of the washer must be allocated as a fixed cost to each load of laundry. This share is calculated as the initial

cost of the washer (cash price plus any credit charges) divided by the total number of loads of laundry that will be washed by the appliance during its lifetime. The total number of loads can be estimated by the average number of loads done per week, times the number of weeks the washer is used per year, times the number of years the appliance is expected to last. In addition to a share of the appliance cost, the cost per load of owning and operating the washing machine at home will include a share of repair costs and operating costs (laundry supplies, water, and energy).<sup>3</sup>

The total cost per load will vary from family to family and from area to area, depending on the price of the appliance purchased, the number of loads of wash done, the quantities of fuel and water used and the local rates charged for these utilities, the cost of supplies, and the cost of repairs. The cost of using a self-service laundry will also vary, depending on the local rate for using the washer and dryer, the cost of supplies, and the cost of transportation to and from the laundry. The location of the self-service laundry and the

<sup>3</sup> Additional information on this topic is available in the following article: Mork, L.F. Figuring the cost of doing laundry at home. *Family Economics Review*, pp. 6-7. December 1970.

### Consumer Price Index

(1967=100)

Index	Year (annual average)					
	1954	1958	1962	1966	1970	1974
All items .....	80.5	86.6	90.6	97.2	116.3	147.7
Washing machines .....	121.8	115.8	104.5	99.7	107.3	117.1
Refrigerators .....	166.0	119.6	112.5	100.2	105.8	114.6
Ranges .....	109.6	107.6	104.0	99.2	108.5	115.8
Clothes dryers .....	---	---	---	100.0	108.4	121.4
TV sets .....	123.9	124.6	117.7	102.1	99.8	98.9
Washing machine repairs .....	---	---	---	95.2	123.8	166.4
TV repairs .....	82.5	99.6	103.7	99.1	96.9	101.8

Source: U.S. Department of Labor, Bureau of Labor Statistics.



convenience of getting there is also an important consideration.

In figuring the cost of freezing and storing food in a home freezer, a share of the cost of the appliance is allocated to each pound of food frozen over the lifetime of the appliance. The pounds of food frozen will depend on the capacity of the freezer, how full it is kept, and the turnover of food. A share of the cost of repairs, packaging, and electricity, and if food is homegrown, the cost of planting and growing that food and preparing it for freezing, will also need to be allocated to each pound of food. The cost of electricity for freezing food and for maintaining a temperature of 0° F (-18° C) will depend on the local utility rate, the size and efficiency of the freezer, the number of

pounds of food frozen, and the turnover of food.<sup>4</sup>

A family's decision to own or not to own a specific appliance may be based on factors other than the cost of owning and operating the appliance. The convenience of having a washer and dryer, or a freezer; the space available in the home for these appliances; and the frequency of need for the service supplied by these appliances may be important considerations for some families.

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<sup>4</sup>Redstrom, R.A. Practices in the use of home freezers. Paper presented at the 45th Annual Agricultural Outlook Conference, 1967. Consumer and Food Economics Institute, Agricultural Research Service, USDA.

## TRENDS IN OVERTIME HOURS AND PAY

In May 1974, about 16.1 million workers, or one of every five employed persons, worked more than 40 hours in his or her principal job. Eight million, or one-half, of the persons working overtime were white-collar workers, 6 million blue-collar workers, 1 million service workers, and a half million farmworkers. Men were almost three times more likely than women to work overtime.

The number of persons working overtime increased only slightly between 1969 and 1974 despite a sizable growth in total employment, perhaps indicating that workers place a greater value on a shorter workweek than on additional income. During this period, the overtime schedules of white-collar and service workers were less likely to be affected by changes in economic conditions than the schedules of blue-collar and farmworkers.

About one-half of persons working overtime in 1974 put in from 1 to 8 extra hours per week; one-fifth put in 20 or more extra hours. Only 42 percent of overtime workers collected premium pay (time and a half or double time) for these extra hours. Premium pay was more usual for blue-collar than white-collar jobs, and younger workers were more likely to receive premium pay than older workers. Younger workers are generally concentrated in production and nonsupervisory jobs where the probability of receiving premium pay is

greatest, whereas many older workers on overtime are supervisory or administrative workers who typically do not receive premium pay.

Receipt of premium pay was much more prevalent among persons who worked overtime only occasionally than among those for whom overtime work was a general routine. Only one-third of persons who usually worked overtime received premium pay, compared with two-thirds of those for whom overtime work was only an occasional practice. The probability of receiving premium pay for extra hours also declined as the number of hours increased. Only one-fifth of the jobholders who usually worked 60 hours or longer received premium pay. These relationships largely result from occupational differences. A large proportion of the people who usually work overtime, and of those who put in the longest workweeks, are in white-collar occupations where the payment of premium pay is the exception.

Workers with overtime pay are heavily concentrated in the middle-earning brackets—between \$100 and \$300 a week. Overtime wages raise workers income from the lowest level, but are not sufficiently large to push them into the uppermost brackets.

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Source: Westcott, D.N. Trends in overtime hours and pay, 1969-74. *Monthly Labor Rev.* 98(2):45-52. 1975 (Feb.).



# ENERGY: SOME TRENDS AND DEVELOPMENTS

Marilyn Doss Ruffin

Energy prices are up and consumers are using less. As measured by the Consumer Price Index, prices in March 1975 were 16 percent higher for electricity, 18 percent higher for gas, and 13 percent higher for fuel oil and coal than in March 1974. Domestic consumption of fossil fuels declined 3 percent in 1974 according to the Federal Energy Administration (FEA). Consumption of natural gas dropped 4 percent, and consumption of electric power increased less than 1 percent despite shifts to electric heating in new homes caused by continued tight supplies of utility gas.<sup>1</sup> Public debate has focused on the need for continued conservation of energy and the development of national policies that encourage better energy decisions by consumers.

## Economic Incentives to Conserve

Several proposed measures would provide greater economic incentive than at present to consumers who conserve energy. These measures include changes in the way energy costs are allocated among users, and grants and tax benefits for investment in energy-conserving home improvements. At the request of the President, the Energy Resources Council is reviewing the entire regulatory process and financial situation relating to electric utilities to determine what reforms or actions are needed.

Of particular interest to consumers are alternatives to the "declining block rate" pricing of electricity that is in general use today. With declining block rate pricing, the cost of additional units of electricity is less as larger amounts are used. Consumers of modest amounts of electricity therefore pay more per unit than those at higher levels of monthly use. Thus a decrease in consumption results in a less than proportionate cost reduction to the consumer. The "lifeline rate concept" would provide a minimum amount of electricity (in effect, the first block) to all households at a reasonable cost with higher rates for additional blocks. The rate most often discussed for use in

the U.S. is 400 kilowatt hours per month for \$10. FEA is funding a pilot project to study the effect of this rate structure on consumption by U.S. households. The lifeline concept has already been instituted in Puerto Rico and is said to be working well. "Peak-load" or time-of-day pricing is being studied in FEA-funded projects in six States. Under peak-load pricing, lower rates are charged for electricity used during nonpeak hours and higher rates are charged for electricity used when system demands are high. In one case, the rate charged for peak use is nearly 10 times that charged for off-peak use. The rationale for peak-load pricing is that "shaving" of system peaks may slow the need for additional generating equipment as well as reducing the use of inefficient equipment that must be brought into service to meet peak demands.

Also funded by FEA is a 6-month study of electricity consumption by renters to determine the difference in level of use in buildings that include electricity in rental charges (master metering) and in those where individual meters are provided and tenants pay their own bills (single-unit metering). Preliminary research by FEA's Office of Energy Conservation indicated that 20 to 40 percent more electricity is used with master metering. The final report will make policy recommendations on metering practices.

The energy conservation program proposed by the Administration includes a 15-percent energy conservation tax credit for homeowners who add insulation or other specified energy-conserving improvements to their homes. Another proposed measure would provide \$55 million of aid annually through 1978 to help States develop and implement programs to insulate the dwellings of low-income persons, particularly the elderly. These measures were before the Congress when FAMILY ECONOMICS REVIEW went to press. In some States, community action agencies and volunteers are aiding low-income families in weatherproofing their dwellings—in Maine, nearly 3,000 homes have been "winterized." A Federal Energy Administration pilot program also focuses on Maine; about 700 substandard homes will be upgraded under a cooperative project.

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<sup>1</sup> Data on 1974 U.S. average consumption per residential customer are not yet available.

## Improved Energy Efficiency

Improved energy efficiency in building and appliances was proposed as part of the Administration's energy conservation program. Legislation is being sought to require improved standards for home and commercial buildings. An estimated 18 million existing homes lack adequate insulation.<sup>2</sup> Voluntary improvement is proposed for improving energy efficiency of appliances. The goal is a 20-percent reduction in energy consumption by 1980.

Competition and the pressure of energy shortages on industry already are resulting in the use of energy efficiency as a marketing tool and in the development of products with improved efficiency. Over 75 percent of room air-conditioners produced in 1974 had permanent split capacitor motors, a feature resulting in considerably improved energy efficiency. According to industry forecasts, the use of the more effective polyurethane "foamed-in-place" insulation (as opposed to fiber glass) in refrigerators and freezers is increasing and will continue to do so as more facilities are developed for the process. In addition to the energy benefit to the consumer, the foamed construction strengthens the cabinet walls. Future construction modifications permitted by reduced need for steel may mean economies in production. With respect to ovens, a possible trend to smaller size has been noted. Although the 30-inch width range remains standard, models have been introduced that feature a smaller oven combined with side storage. From an energy standpoint, consumers are advised to select the smallest oven that meets the family's needs.

## Comparative Energy Information

Comparative energy consumption information for major energy products will aid consumers in making informed energy choices. In developing such information the challenge is twofold: To arrive at realistic standards for testing that relate to actual consumer practice; and to express test findings in concepts that are readily understood and used by the layman. For most appliances, the current thinking is that cost is the most readily understood energy yardstick so far as the consumer is concerned.

<sup>2</sup>Federal Energy Administration, *Energy Reporter* (Citizen Newsletter), 1975 (Mar.).

Whether energy labeling should be mandatory or voluntary is yet to be resolved. A federally administered (Department of Commerce) voluntary energy conservation labeling program is in effect for room air-conditioners, and a proposal has been published in the Federal Register for refrigerators and freezers.<sup>3</sup> Other energy-intensive appliances ultimately to be included in the program are water heaters, dishwashers, washers, dryers, ranges, ovens, central air-conditioners, and heating equipment. Industry favors the voluntary approach and is cooperating with the Department of Commerce in developing test criteria and consumer guidelines. Industry efforts did, in fact, precede the Federal voluntary program and provide the basis for evaluating air-conditioners and refrigerators and freezers. The Association of Home Appliance Manufacturers (AHAM) publishes the Energy Efficiency Ratios (EER) of most room air-conditioner models and the monthly energy consumption for most models of refrigerators and freezers. Reference copies of the directories are available in many public libraries and where the appliances are sold. Industry also is developing revised voluntary standards for forced-air gas furnaces that will permit comparison of energy consumption.

Legislation pending in Congress<sup>4</sup> would require mandatory energy labeling of major energy-consuming appliances and of autos. Testing by the manufacturer or supplier and calculation of average annual operating costs under government-developed guidelines would be required. Energy cost information would appear on any tag, label, display, contract, estimate, printed advertisement, or any other display of the price.

## Consumer Education Aids

Consumer education and information professionals are eligible to receive free of charge Federal Energy Administration newsletters and other informational aids. The monthly newsletter, *ENERGY REPORTER*, is available to "Key communicators and leaders" in schools,

<sup>3</sup>Refrigerators, refrigerator-freezers, and freezers, *Federal Register*, December 31, 1974, 39(259), 45334-45347.

<sup>4</sup>"Energy Information and Disclosure" bill as reported out of Senate Commerce Committee on June 12.



organizations, and businesses. Address inquiries to Office of Communications and Public Affairs, Federal Energy Administration. Editors and writers who are associated with Spanish language newspapers, magazines, or organization newsletters and who wish to receive news releases and a weekly column in Spanish may be placed on FEA's Spanish mailing list. Address inquiries to Hector Mimiaga, Office of Communications and Public

Affairs, Federal Energy Administration. FEA offers assistance to educational groups and schools preparing energy materials or an energy conservation program. Direct inquiries and suggestions to Education Editor, Office of Communications and Public Affairs, Federal Energy Administration. FEA is located at 12th and Pennsylvania Avenue, NW., Washington, D.C. 20461.

## ENERGY CONSERVATION PUBLICATIONS

Single copies are available free from the following Government agencies.

National Bureau of Standards, Washington, D.C. 20234:

- ENERGY EFFICIENCY IN ROOM AIR CONDITIONERS. No. LC 1053. Pamphlet. (Department of Commerce).

Consumer Information, Dept. FE, Pueblo, Colorado 81009:

- CHECKING YOUR UTILITY BILLS. No. 260C. (Office of Consumer Affairs).
- COMO ECONOMIZAR ENERGIA Y DINERO EN SU HOGAR (How to Save Energy and Money in Your Home). (Federal Energy Administration).
- 1975 GAS MILEAGE GUIDE FOR NEW CAR BUYERS. 10 pages; prepared by Environmental Protection Agency; lists fuel economy of over 250 new car models. Gives number of miles per gallon for each model, both domestic and foreign. (FEA).
- TIPS FOR ENERGY SAVERS. 32 pages. Recommends practical ways to conserve energy around the home and in the automobile. (FEA).
- TIPS FOR MOTORISTS. 10 pages; gives 30 ways to make gasoline go further. (FEA).

Public Information Office, Federal Power Commission, 825 North Capitol Street, NE., Washington, D.C. 20426:

- YOUR ELECTRIC METER...HOW TO READ IT.

Office of Public Affairs, Department of Transportation, 400 Seventh Street, SW., Washington, D.C. 20590:

- GASOLINE: MORE MILES PER GALLON. 12 pages.

## REAL ESTATE SETTLEMENT PROCEDURES ACT OF 1974

Home buyers and sellers will receive advance disclosure of all finance charges and settlement costs under provisions of the Real Estate Settlement Procedures Act of 1974. The law, which became effective on June 20, 1975, applies to most transactions involving federally related mortgage loans. In addition to advance

disclosure of costs, the law prohibits kickbacks or referral fees, limits the amounts home buyers are required to place in escrow accounts established to insure the payment of real estate taxes and insurance, and requires reforms and modernization of local recordkeeping of land-title information.

# NONWOVEN FABRICS: AN OVERVIEW

Nancy G. Harries

Consumers can expect to see additional nonwoven fabrics in the marketplace in the future. Nonwoven fabrics in durable products are expected to show the largest growth, although nonwovens in disposable products will continue to be important. In 1974, the value of nonwoven fabrics consumed in the United States was reported to be \$585 million, about equally divided between durable and disposable products. The value of nonwoven fabrics is predicted to increase to \$1.4 billion in 1980, which represents a growth rate of about 16 percent per year<sup>1</sup>

## Definition of Nonwoven Fabrics

Nonwoven fabrics are structured directly from fibers or fiber solutions; the yarn stage of fabric manufacture is omitted. The International Nonwovens and Disposable Association defines nonwoven fabrics as "...sheet or web structures made by bonding fibers, yarns, or filaments by mechanical, thermal, chemical and/or solvent means."<sup>2</sup> Nonwoven fabrics are generally classified either by the *manufacturing process* used for fabric formation or the intended *end use* (disposable or durable). There are many manufacturing processes used to produce nonwoven fabrics, and many of the processes can be used to produce fabrics for use in either disposable or durable products. Disposable products include those discarded after a single use (diapers), or at most a few uses (a wiping cloth or lab coat, for example). Durable nonwoven fabrics are those incorporated into other products and used continuously (the interlining in a dress or the backing of a carpet). Some of the new durable nonwovens are being produced for use as independent fabrics (as in draperies) rather than as parts of other products.

The definition of the term nonwoven has created some confusion within the textile trade. Several other fabric structuring methods that do not involve weaving—knit, net, lace, and braid structures—produce fabrics that are technically not woven, but that are not classified as nonwoven. Furthermore, the nonwoven fabric category, as defined within the textile industry, excludes: Heavyweight felts, such as blankets, carpets, and pressed wool felts; conventional paper products made from wood pulp, such as paper napkins; scrim-reinforced vinyl fabrics, such as upholstery, or tapes; and pharmaceutical coil, tipped applicators, cotton and rayon balls, and gauze-based surgical dressings filled with cotton or rayon batting.

## Manufacturing Processes for Nonwoven Fabrics

Most manufacturing techniques fall into five general processes—dry, wet, composite, spunbonded, and spunlaced.

**Dry processes.** Dry-process nonwovens currently account for about 50 percent of nonwoven production and may continue to be the largest category of production through 1980 (see footnote 1). The fiber web is generally produced by one of two methods—carding or air-laying. In the carding process, which is the more common of the two methods, the fibers are aligned or oriented somewhat parallel to each other. The weight of the web is often built up by using a series of cards to form a wingle web. For added strength and pliability, the carded webs can be laid with the fiber direction alternated in every other layer (referred to as cross-laying the fibers). In the air-lay method the fibers are dispersed by air and laid down with a vacuum to produce the fiber web. The air-lay web generally has its fibers in a more random orientation than that of the aligned carded webs, with little preference for the fibers laying in a given direction. A nonwoven product made from one of the random, air-laid webs has more give and is more like the bias of a woven fabric than are products made from carded webs which have increased fabric strength in the direction of the fiber alignment.

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<sup>1</sup> Arthur D. Little, Inc. The outlook for the nonwovens industry. In *Idca 74 Conference Papers*, The International Nonwovens and Disposables Association, 1974.

<sup>2</sup> Moremen, L.J. Nonwovens: An industry overview. *American Association of Textile Technology Annual Conference*, New York, 1975.



Fibers in the webs made with the carding and air-laying processes are bonded and finished by chemical, thermal, or mechanical methods. The bonding methods available include spray, immersion, needle punching, and solvent or print bonding. In the needle-punch fiber-bonding process, the fibers are secured in the web by fiber entanglement, a mechanical method. This method forms a fiber interlocking cohesion similar to that achieved with yarns in woven fabrics. Many new techniques of fiber entanglement, without the use of binders or needles, can be expected in the future. Webs formed by fiber entanglement generally provide a softer hand and drape in nonwoven fabrics than do fiber webs which are carded or air laid and then bonded together.

The dry-lay methods of nonwoven manufacture typically require less capital investment and generate a web at a much slower speed than the wet-lay processes. Most fibers, both natural and manmade, can be used in the dry-lay processes. There is a wide degree of flexibility in the type of product produced based on the directional orientation of the fibers in the web, and the bonding application used. Many of the nonwoven interfacing fabrics, wiping cloths, and limited-use apparel are produced by dry-lay processes.

**Wet processes.** In the wet forming processes, fibers are suspended in a large volume of water, then dispersed on a rotating drum or screen while the water is extracted leaving a web of fibers held together by surface tension. This fiber web is removed from the screen and is processed through the drying, bonding, curing, and finishing processes. Cellulosic fibers (rayon and acetate) are used primarily in the wet processes because they cost less than synthetic fibers and because they have natural hydrogen bonding characteristics. Polyester, polypropylene, and nylon synthetic fibers also can be used. The wet processes offer high speed and uniform production in a broad range of product weights. A high capital investment and special technical skills are required. Producers of wet-lay products must look to large markets for their products because of the high production speed. In 1974 only 15 percent of nonwovens were made by the wet processes, and most of these were for industrial use (see footnote 1).

**Composite processes.** Composite and laminated nonwoven fabrics are multi-component or layered fabrics. The nonwoven layer may include reinforced fabrics, combinations of wet and dry-formed nonwovens, spunbonded and needle-punched laminates, and a wide variety of other combinations. Examples of uses of nonwoven composite fabrics include surgical gowns, drapes, and hospital bed sheets. Composite nonwoven fabrics are advantageous because of the increased tensile and tear strength the added layers provide. The outerlayers are frequently reinforced with a nylon scrim or web, laminated in between the two outer layers. Composite nonwovens accounted for about 1 percent of nonwoven production in 1974 (see footnote 1).

**Spunbonded processes.** The fastest growing type of web-forming process is known as spunbonding. Fibers or filaments are produced in a molten state and extruded through a spinneret. Bonding takes place as the molten, semimelted fibers cross over each other and fuse as they are laid down on a moving conveyor. The web may receive further finishing treatment after this bonding takes place. Thermoplastic fibers (those that melt with heat rather than scorch) of polyester, polyolefin, polypropylene, and nylon are the primary fibers used. The capital investment for spunbonding is very high, and product development requires a lengthy lead time. However, the high expenditure is considered worthwhile by industry because the fabric has better tear and tensile strength than woven or knitted fabrics of similar weights, and the highly automated process makes the finished fabric comparatively inexpensive. Spunbonded fabrics have a smooth surface that can be embossed, flocked, or printed, and require little specialized finishing such as bleaching or shrinking. Current uses for spunbonded fabrics include primary and secondary carpet backing, carpet underpads, bedspreads, mattress pads, and wall coverings.

**Spunlaced processes.** In this different and newest type of fabric-structuring process, jet streams of water are forced through a web structure, forming an almost wovenlike fabric. The fibers interlace with each other as a result of the water-jet action. The fibers in the

spunlaced web have a loose bond, compared with the more rigid bond of the spunbonded webs discussed above. Finished fabrics have the elasticity and flexibility of knitted structures. Spunlaced webs are currently formed from polyester fibers, although other fibers can be used. Spunlaced fabrics, which are just now being commercialized, appear to have great potential for selected large textile markets such as decorative drapery, upholstery, and bed-spread fabrics. Industrial applications include secondary carpet backings, shoe liners, coating substrate, laminated backings, and plastic reinforcements. Also, spunlaced fabrics are predicted to have a future for use in soft, apparel fabrics.

Spunlaced and spunbonded nonwoven fabrics together accounted for about 25 percent of nonwoven output in 1974. By 1980 they are predicted to account for nearly 40 percent of all nonwoven fabric production (see footnote 1). Their unique properties which allow them to compete with woven and knitted fabrics will contribute to the growth of nonwoven fabrics in durable products.

### Consumer Uses for Nonwoven Fabrics

Disposable nonwoven products account for about one-half of all nonwoven fabric production. Retail sales of products that contained nonwoven disposable fabric were estimated at \$1.5 billion in 1974 (see footnote 1). The disposable nonwoven product that consumers used in the largest quantity was diapers. Next in consumer-use volume were sanitary napkins and tampons. The remaining disposable-product sales were for products such as wiping cloths; surgical packs, gowns, and underpads; and limited or single-use apparel. Disposable diapers are predicted to continue to lead the nonwoven market and may more than double in sales by 1980. Disposable diapers now account for about 50 percent of all diaper changes in the United States (see footnote 1).

Durable nonwoven products—products designed to be used continuously—account for the remaining 50 percent of nonwoven fabric production. In the durable nonwoven field, industrial applications are expanding rapidly. Among the many uses are coated, abrasive buffing pads; electrical insulation; highway construction stabilizers; bagging, packaging,

and bale wraps; industrial tapes; papermaker's felts; bookbinding, labels, tags, maps, and signs; and substrate for vinyl-coated material such as auto tops and in other products designed to be leather substitutes. In the homefurnishings arena, durable nonwovens are becoming a significant part of the market. They are being used extensively as quilt backing material; carpet backing; dust liners; mattress components; drapery headings; table covers; curtains; and wall coverings.

The nonwoven market is expanding into new products not associated in the past with nonwoven structures. The variety of web forming processes, bonding methods, web treatments and finishes; the availability of synthetic fabrics with different varying chemical and physical properties and the technological ability to make composite fabrics allow increased versatility for nonwoven fabrics. At present, however, nonwoven fabrics are not being used as outer fabrics in the apparel field.

Prices of products made wholly or partially with nonwoven fabrics have generally been competitive with products made with more conventional fabrics. However, recent price increases for nonwoven fabrics may affect their use in products that can be made from conventional fabrics, especially where the prices of conventional fabrics have declined. Price increases are unlikely to affect either the availability or the consumption of products whose use has been due more to the unique performance of the product than to its price; this situation has predominated the nonwoven fabric markets in the past. For example, disposable diapers are purchased instead of reusable diapers presumably because consumers consider their convenience worth the additional cost. Also, in areas such as home furnishings where the use of nonwovens has become integral to the manufacturing process, price increases that are in line with general economic conditions, are unlikely to affect the use of nonwovens.

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Sources: The International Nonwovens and Disposables Association (INDA), *Idea 74 Conference Papers*, December 1974. Plus personal communications with representatives from INDA, 10 East 40th Street, New York, N.Y. 10016, and with producers of nonwoven fabrics.



# USDA CLOTHING BUDGETS: 1975 COSTS

Children's and adults' clothing budgets at three cost levels have been updated to 1975 prices and are presented in tables 1, 2, and 3. The seasonally adjusted indexes for March 1975 were used to represent 1975. A description of these budgets may be found in the Summer 1974 issue of *Family Economics Review*.

Table 1.—Children's clothing budgets: Annual cost of clothing purchases for children at 3 cost levels, by urbanization and region, United States, 1975 prices<sup>1</sup>

Urbanization, region, and cost level	Infants under 2 years	Girls			Boys		
		2 to 5 years	6 to 11 years	12 to 15 years	2 to 5 years	6 to 11 years	12 to 15
FARM	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
North Central:							
Economy .....	28	71	90	136	71	107	128
Low-cost .....	43	109	154	260	92	145	190
Moderate-cost .....	---	---	237	418	111	208	265
South:							
Economy .....	38	70	110	143	63	124	137
Low-cost .....	60	112	174	251	102	158	210
Moderate-cost .....	---	---	235	357	---	214	302
RURAL NONFARM							
North Central:							
Economy .....	44	44	92	---	53	91	---
Low-cost .....	55	74	124	246	76	131	174
Moderate-cost .....	69	128	181	377	118	191	243
South:							
Economy .....	40	63	84	126	69	96	118
Low-cost .....	64	107	144	240	99	143	193
Moderate-cost .....	86	180	236	360	147	228	294
Northeast:							
Low-cost .....	66	96	158	205	98	155	215
Moderate-cost .....	82	166	259	356	152	244	302
West:							
Low-cost .....	---	100	170	237	118	135	194
Moderate-cost .....	---	149	250	380	---	185	276
URBAN							
North Central:							
Economy .....	48	54	85	---	60	106	---
Low-cost .....	65	107	156	230	95	151	165
Moderate-cost .....	78	150	224	341	131	205	233
South:							
Economy .....	42	72	109	115	73	111	---
Low-cost .....	67	110	147	210	101	155	177
Moderate-cost .....	90	164	228	368	150	233	273
Northeast:							
Economy .....	37	84	104	---	95	142	---
Low-cost .....	59	108	151	199	118	149	180
Moderate-cost .....	82	170	252	374	171	226	285
West:							
Economy .....	37	60	101	---	68	102	---
Low-cost .....	61	98	157	188	99	136	162
Moderate-cost .....	78	151	235	318	143	205	241

<sup>1</sup> Estimates based on expenditure data from the 1960-61 Survey of Consumer Expenditures by the U.S. Bureau of Labor Statistics and the U.S. Department of Agriculture, and on changes in prices paid by urban families since the Survey date.

Budget levels: The economic levels of the budgets are those at which families spent for food at the levels of 3 USDA food plans—economy, low-cost, and moderate-cost.

Computation: The budgets were based on the data for all children in families of husband and wife with 1 to 5 children and no other persons. Budgets are not shown for categories that had data on less than 30 individual children. Estimates could not be computed at any of the 3 budget levels for farm children in the Northeast and West, and at the economy level for rural nonfarm children in the Northeast and West. Urban budgets at low-cost and moderate-cost were derived from categories with 100 or more children. Most of the other budgets were derived from categories with 30 to 99 children.

Items covered: The budgets show costs for garments and shoes, but exclude clothing materials and clothing upkeep, as data for individual persons are not available for these 2 categories. On the basis of family data from the 1960-61 Survey, costs of clothing materials and upkeep might add 10 to 15 percent to the cost of a given budget.

Updating costs: Annual costs of the clothing budgets were updated to 1975 by adjusting for price changes for clothing since the Survey dates. The Apparel and Upkeep Index, and the price indexes for women's and girls' garments, men's and boys' garments, and footwear, subgroups of the Consumer Price Index published regularly by the U.S. Bureau of Labor Statistics, were used for adjusting components. The seasonally adjusted indexes for March 1975 were used to represent 1975.

Table 2.—Women's clothing budgets: Annual cost of clothing purchases for women at 3 cost levels, by urbanization and region, United States, 1975 prices<sup>1</sup>

Urbanization, region, and cost level	Unmarried, living in families		Married			Independent consumers		65 years and over
	16 to 17 years	18 to 24 years	18 to 24 years, not employed	25 to 64 years, not employed	25 to 64 years, employed	25 to 64 years, employed	25 to 64 years, not employed	
FARM	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
North Central:								
Economy .....	173	---	---	113	---	---	---	---
Low-cost .....	308	511	147	144	183	---	---	67
Moderate-cost .....	---	736	---	238	---	---	---	103
South:								
Economy .....	---	---	---	97	---	---	---	---
Low-cost .....	294	327	160	145	218	---	---	71
Moderate-cost .....	458	480	---	260	376	---	---	81
Northeast:								
Economy .....	---	---	---	85	---	---	---	---
Low-cost .....	---	---	---	113	---	---	---	---
Moderate-cost .....	---	---	---	202	---	---	---	---
RURAL NONFARM								
North Central:								
Economy .....	---	---	---	71	---	---	---	54
Low-cost .....	---	349	120	119	---	---	---	81
Moderate-cost .....	---	---	---	227	---	---	---	165
South:								
Economy .....	---	---	101	74	---	---	---	47
Low-cost .....	332	354	156	125	266	---	---	76
Moderate-cost .....	---	---	270	255	499	---	---	167
Northeast:								
Economy .....	---	---	---	74	---	---	---	49
Low-cost .....	---	---	---	133	---	---	---	70
Moderate-cost .....	---	---	---	263	---	---	---	---
West:								
Economy .....	---	---	---	74	---	---	---	---
Low-cost .....	---	---	---	127	---	---	---	---
Moderate-cost .....	---	---	---	248	---	---	---	---
URBAN								
North Central:								
Economy .....	---	---	---	81	---	---	55	53
Low-cost .....	314	454	221	175	220	201	127	113
Moderate-cost .....	448	591	307	269	334	296	---	179
South:								
Economy .....	---	198	147	90	---	---	---	60
Low-cost .....	300	464	244	167	185	307	154	88
Moderate-cost .....	462	669	373	291	361	470	---	156
Northeast:								
Economy .....	---	---	---	84	---	---	---	77
Low-cost .....	298	436	222	176	202	182	101	117
Moderate-cost .....	481	610	364	303	376	316	225	171
West:								
Economy .....	---	---	108	78	---	---	---	68
Low-cost .....	243	443	197	177	187	242	192	107
Moderate-cost .....	367	563	305	295	349	330	---	162

<sup>1</sup> Estimates based on expenditure data from the 1960-61 Survey of Consumer Expenditures by the U.S. Bureau of Labor Statistics and the U.S. Department of Agriculture, and on changes in prices paid by urban families since the Survey date.

Budget levels: The economic levels of the budgets are those at which families spent for food at the levels of 3 USDA food plans—economy, low-cost, and moderate-cost.

Computation: The budgets for unmarried women, living in families, and for married women were based on the data for women in families of various types. Independent consumers are persons living alone or in a household with others but independent financially—not pooling income and expenditures. The group 65 years and over includes both independent consumers and family members. Budgets are not shown for categories that had data on less than 30 individual women. Estimates could not be computed at any of the 3 budget levels for farm women in the West.

Items covered: The budgets show costs for garments and shoes, but exclude clothing materials and clothing upkeep, as data for individual persons are not available for these 2 categories. On the basis of family data from the 1960-61 Survey, costs of clothing materials and upkeep might add 10 to 15 percent to the cost of a given budget.

Updating costs: Annual costs of the clothing budgets were updated to 1975 by adjusting for price changes for clothing since the Survey dates. The Apparel and Upkeep Index, and the price indexes for women's and girls' garments, men's and boys' garments, and footwear, subgroups of the Consumer Price Index published regularly by the U.S. Bureau of Labor Statistics, were used for adjusting components. The seasonally adjusted indexes for March 1975 were used to represent 1975.



Table 3.—Men's clothing budgets: Annual cost of clothing purchases for men at 3 cost levels, by urbanization and region, United States, 1975 prices<sup>1</sup>

Urbanization, region, and cost level	Unmarried, living in families		Married		Independent consumers, 25 to 64 years	65 years and over
	16 to 17 years	18 to 24 years	18 to 24 years	25 to 64 years		
<b>FARM</b>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
North Central:						
Economy .....	---	---	---	130	---	78
Low-cost .....	221	252	---	172	---	100
Moderate-cost .....	338	322	---	258	---	148
South:						
Economy .....	161	---	---	124	---	73
Low-cost .....	212	247	---	179	---	95
Moderate-cost .....	---	382	---	268	---	148
Northeast:						
Economy .....	---	---	---	115	---	---
Low-cost .....	---	---	---	130	---	88
Moderate-cost .....	---	---	---	196	---	---
<b>RURAL NONFARM</b>						
North Central:						
Economy .....	---	---	---	91	---	47
Low-cost .....	---	251	---	146	---	70
Moderate-cost .....	---	---	---	237	---	119
South:						
Economy .....	---	---	---	99	---	64
Low-cost .....	187	237	204	169	---	87
Moderate-cost .....	---	391	---	287	---	142
Northeast:						
Economy .....	---	---	---	87	---	---
Low-cost .....	---	314	---	179	---	57
Moderate-cost .....	---	399	---	282	---	82
West:						
Economy .....	---	---	---	129	---	---
Low-cost .....	---	---	---	189	---	100
Moderate-cost .....	---	---	---	280	---	---
<b>URBAN</b>						
North Central:						
Economy .....	---	---	---	86	---	45
Low-cost .....	238	263	242	179	129	95
Moderate-cost .....	308	341	297	255	144	144
South:						
Economy .....	---	---	---	101	---	50
Low-cost .....	192	278	238	180	159	82
Moderate-cost .....	277	376	313	285	286	141
Northeast:						
Economy .....	---	---	---	93	---	45
Low-cost .....	208	234	203	165	120	80
Moderate-cost .....	297	330	292	272	265	129
West:						
Economy .....	---	---	---	109	---	53
Low-cost .....	178	246	232	194	207	77
Moderate-cost .....	246	312	286	284	307	116

<sup>1</sup> Estimates based on expenditure data from the 1960-61 Survey of Consumer Expenditures by the U.S. Bureau of Labor Statistics and the U.S. Department of Agriculture, and on changes in prices paid by urban families since the Survey date.

Budget levels: The economic levels of the budgets are those at which families spent for food at the levels of 3 USDA food plans—economy, low-cost, and moderate-cost.

Computation: The budgets for unmarried men, living in families, and for married men were based on the data for men in families of various types. Independent consumers are persons living alone or in a household with others but independent financially—not pooling income and expenditures. The group 65 years and over includes both independent consumers and family members. Budgets are not shown for categories that had data on less than 30 individual men. Estimates could not be computed at any of the 3 budget levels for farm men in the West.

Items covered: The budgets show costs for garments and shoes, but exclude clothing materials and clothing upkeep, as data for individual persons are not available for these 2 categories. On the basis of family data from the 1960-61 Survey, costs of clothing materials and upkeep might add 10 to 15 percent to the cost of a given budget.

Updating costs: Annual costs of the clothing budgets were updated to 1975 by adjusting for price changes for clothing since the Survey dates. The Apparel and Upkeep Index, and the price indexes for women's and girls' garments, men's and boys' garments, and footwear, subgroups of the Consumer Price Index published regularly by the U.S. Bureau of Labor Statistics, were used for adjusting components. The seasonally adjusted indexes for March 1975 were used to represent 1975.

# NUTRITION LABELING--TOOLS FOR ITS USE

Betty Peterkin

A bulletin, *Nutrition Labeling—Tools for Its Use* (AIB-382), and a NUTRIMETER have been developed by the Consumer and Food Economics Institute to help people use nutrition information on food labels to check and improve their diets. A NUTRIMETER *Student's Guide* (MP-1303) and a NUTRIMETER *Teacher's Guide* (MP-1304) tell how these materials might be used by students in secondary schools, colleges, and universities.

## The Bulletin

The bulletin describes and supplements the nutrition information on food labels. It includes:

- Explanations of some of the terms on the nutrition information panel on food labels—calories, grams, percentage of the U.S. Recommended Daily Allowance (U.S. RDA), and riboflavin, for example.
- A table showing amounts of food energy (calories), protein, 5 vitamins, and 2 minerals supplied by each of 900 foods. Amounts of nutrients are shown as a percentage of the U.S. RDA—the way they are shown on food labels.<sup>1</sup> The table includes some foods that are not currently labeled—fresh meat and fresh fruit and vegetables, for example.
- A table showing the amounts of nutrients (as percentages of the U.S. RDA) recommended for men, women, and children of different ages.
- Lists of foods that are important sources of specific nutrients.
- A seven-step procedure for using information on the food labels and in the publication to check and possibly improve the nutrient content of the diet.

## The NUTRIMETER

The NUTRIMETER is a device designed to help total the number of calories and the percentage of the U.S. RDA for seven nutrients

supplied by foods eaten in a day. It is intended for use at home or at school, not at the store. The NUTRIMETER has a calibrated bar with a sliding arrow for calories and for each nutrient (see illustration).

To use the NUTRIMETER, place all arrows at the "0" on bars. Then, for each food you eat, move arrows to the right the distance that represents the percentage of the U.S. RDA for various nutrients provided by the food. Likewise, move the arrow for calories to represent the calories in foods. The percentage of the U.S. RDA and the calories in a given size serving may be shown on the food label or in the bulletin.

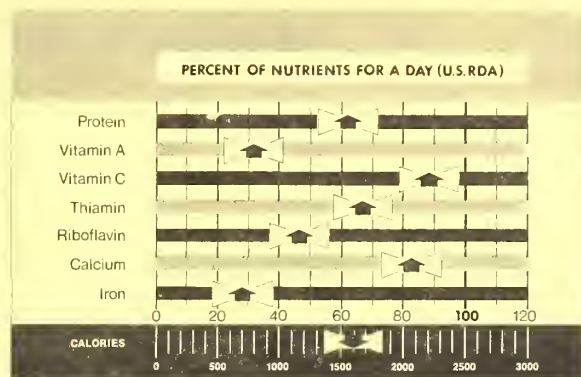
If at the end of the day all arrows reach 100 percent or more, your diet has as much of the seven nutrients as most people need. (A design of the four food groups is shown on one part of the NUTRIMETER to emphasize the need for a varied diet to help provide the many nutrients not shown.) If your diet scores less than 100 percent for some nutrients, check the right panel of the NUTRIMETER for the "Percent U.S. RDA for You." Depending on your sex and age you may not need as much as 100 percent of the U.S. RDA, which was set to cover the amounts of nutrients recommended for most people. The percentages of the U.S. RDA recommended for children of different ages and for women and men are shown.

If for several days in a row your diet supplies less than the percentage of the U.S. RDA recommended, certain changes in food selections may be indicated. Some important food sources of the nutrients are listed on the NUTRIMETER. More detailed lists are included in the bulletin.

You can use the NUTRIMETER to count calories, while checking to see that needs for nutrients are met. However, if you need to gain or lose more than a few pounds, check with your physician.

The *Student's Guide* and the *Teacher's Guide* describe eight activities for the class, committee, or student using the bulletin and the NUTRIMETER. These activities are believed to be suitable for students in secondary schools, colleges, and universities.

<sup>1</sup>For a discussion of nutrition labeling and the U.S. RDA see: Peterkin, B., Nutrition labeling for the consumer, *Family Economics Review*, pp. 7-14. September 1973.



## Purposes of Bulletin and NUTRIMETER

Finding out how good a diet is in terms of nutrients it provides is a basic step to using nutrition information on food labels to improve that diet. To accomplish that basic step, information such as that included in the bulletin—nutritive values of foods not labeled, the part of the U.S. RDA recommended for men, women, and children of different ages, and procedures for using this information—is required.

The purpose of the NUTRIMETER is three-fold: (1) To help total the calories and the percentages of the U.S. RDA for nutrients provided by foods for a day; (2) to demonstrate the concept that nutrients from a variety of foods together provide a nutritious diet; and (3) to encourage people, through the novelty of the device, to evaluate their diets for a few days and, if indicated, change food selections to improve their diets.

The bulletin and the NUTRIMETER do not provide guidance for people with health problems that require special diets. They do not provide information about the types of fat, cholesterol, and sodium, for which values are shown on labels of some foods.

## Users

Some people want tools for determining the nutritive value of foods they eat, as evidenced by requests for USDA publications such as *Nutritive Value of Foods*, HG-72. This number will probably increase as nutrition information on labels is promoted and Food and Drug Administration regulations go into effect

(July 1, 1975). The bulletin and the NUTRIMETER will be useful to these people.

Teachers, extension agents, and other nutrition educators across the country are attempting to educate people to use nutrition information on food labels. It is expected that many of these educators will assist and encourage groups of interested consumers and students in their initial use of the bulletin and the NUTRIMETER.

Many people probably will not care to or be able to use procedures for checking and improving their diets described in the bulletin and on the NUTRIMETER. To provide guidance for people who prefer a simpler approach to selecting a nutritious diet, USDA consumer publications on food selection will continue to present and interpret The Daily Food Guide as a basis for making food choices.

## How to Order

Materials are for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Prices for single copies as follows:

Nutrition Labeling—Tools for Its Use, Agriculture Information Bulletin No. 382, \$1.15.

NUTRIMETER, 70 cents.

NUTRIMETER Student's Guide, Miscellaneous Publication No. 1303, 30 cents.

NUTRIMETER Teacher's Guide, Miscellaneous Publication No. 1304, 25 cents.

A discount of 25 percent may be allowed on orders of 100 or more copies of a single publication.



# HOUSING IN MULTIUNIT BUILDINGS

Lucie G. Krassa

Nine out of 10 housing units in multiunit buildings under construction in 1973 were in buildings with five or more units. The majority of these units had air-conditioning, electric heat, two or more bedrooms, one bathroom, and were in buildings with fewer than four floors (see table). These data, which include buildings with units for rent or condominium ownership and buildings owned by cooperatives, are from a new series of statistics published by the U.S. Bureau of the Census.

This series "Characteristics of New Multiunit Residential Buildings" includes the characteristics of units in buildings with five or more units, and in buildings with two or more units. The series also includes data on the characteristics of the buildings, such as the availability of parking spaces. All data are tabulated for the United States and for four regions.

As new units are added to the total existing housing stock, and as older units are removed and some existing units improved, the overall

*Selected characteristics of housing units in multiunit buildings under construction,<sup>1</sup>  
December 31, 1973, United States and 4 regions  
(Buildings with five or more units)*

Characteristic	United States	North-east	North Central	South	West
Total units (thousands) ..	932	153	154	478	147
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Total <sup>2</sup> .....	100	100	100	100	100
With air-conditioning .....	88	( <sup>3</sup> )	89	97	61
Heating fuel:					
Electric heat .....	62	( <sup>3</sup> )	40	76	55
Gas .....	31	( <sup>3</sup> )	58	19	44
Oil .....	6	( <sup>3</sup> )	1	6	( <sup>4</sup> )
Other .....	1	( <sup>3</sup> )	1	( <sup>4</sup> )	( <sup>4</sup> )
Number of bedrooms:					
None .....	4	7	4	3	7
1 .....	38	45	41	33	41
2 .....	49	37	49	54	43
3 or more .....	9	11	6	10	9
Number of bathrooms:					
1 .....	52	( <sup>3</sup> )	71	43	56
1-1/2 .....	17	( <sup>3</sup> )	16	20	12
2 or more .....	31	( <sup>3</sup> )	14	37	32
Number of floors:					
1 to 3 .....	68	50	80	67	79
4 or more .....	32	50	20	33	21

<sup>1</sup> Refers to buildings with less than 50 percent of the units occupied or ready for occupancy.

<sup>2</sup> Excludes units for which characteristics were not reported.

<sup>3</sup> Estimate does not meet publication standards.

<sup>4</sup> Less than 0.5 percent.

Note: Detail may not add to total due to rounding.

Source: U.S. Department of Commerce, Bureau of the Census, *Housing Starts—Supplement*, "Characteristics of New Multiunit Residential Buildings: 1973," (Construction Reports, C20-74-Supplement), Washington, D.C., 1974.



characteristics of available housing change. Families looking for housing must choose from the existing stock of housing, and the new series from the Bureau of the Census gives an indication of the direction of changes in the characteristics of multiunit housing and the housing that families will find available in the future. Data from the 1970 Census of Housing show that only 42 percent of renter-occupied units in multiunit housing with five or more units had air-conditioning in 1970.<sup>1</sup> One-half of the apartments had only one bedroom and 12 percent had none. Electric heat was available in only 10 percent of the units. Units surveyed as part of the 1970 Census, of course, included units in all existing buildings; 79 percent were in buildings constructed before 1965.

The proportion of units in new buildings with five or more units that were condominiums or cooperatives has increased rapidly in the last 3 years. According to data from the U.S. Bureau of the Census series "Market

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<sup>1</sup> Data from the new series on multiunit housing and from the 1970 Census of Housing are not strictly comparable because the data from the 1970 Census of Housing refer to renter-occupied units only and the new series includes units that were condominiums or cooperative housing.

## OCCUPATIONAL STRUCTURE OF U.S. JOBS: 1960 AND 1970

The U.S. work force increased from 65 million to 77 million persons between 1960 and 1970. White collar workers made up 45.6 percent of the work force in 1970, up from 40.8 percent 10 years earlier. The growth of the white-collar work force reflected an increase in commercial and government offices and in consumer demand for services. The relatively slow growth of manufacturing and construction industries during the 1960's depressed the demand for operatives, nonfarm laborers, and craft workers, and accounted for the decline of blue-collar workers from 36.5 to 33.4 percent of the work force. Service workers retained their relative share of total employment over the decade—about 12 percent, but farmworkers fell from 6.2 percent to 2.9 percent of all employed persons.

Women made up 38 percent of the work force in 1970, up from 33 percent in 1960.

Absorption of Apartments," 23 percent of the units in buildings completed in the first three quarters of 1974 were in these categories compared with 13 percent in 1973, and 8 percent in 1972 and 1971.

The trend of new units to have air-conditioning and electric heat, and the decreasing proportion of new units that are for rent may have implications for families with low and moderate incomes. Those unable to pay the price of energy-consuming utilities or unable to purchase a condominium may find their choices of available housing reduced. On the other hand, families who wish to buy but who cannot afford single-family homes may find that the increase in condominium housing and the trend toward larger units in multiunit housing will make home-buying a possibility.

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Sources: U.S. Department of Commerce, Bureau of the Census, *Housing Starts—Supplement*, "Characteristics of New Multiunit Residential Buildings: 1973," (Construction Reports, C20-74-Supplement), Washington, D.C., 1974; 1970 *Census of Housing*, "Metropolitan Housing Characteristics" (HC[2]-1), Washington, D.C., 1972. U.S. Department of Commerce and U.S. Department of Housing and Urban Development, *Market Absorption of Apartments* (Current Housing Reports, H-130-74-4), Washington, D.C. 1975.

The largest advances in female employment occurred where women traditionally have represented a significant proportion of workers—clerical and service jobs.

Changes in the occupational patterns between 1960 and 1970 generally reinforced trends observed during the 1950's, when professional, technical, and kindred workers led all occupational groups in rate of expansion followed by clerical workers. There were two major exceptions: Private household workers declined in number between 1960 and 1970 in contrast to their growth over the previous 10 years, and sales workers increased more gradually than in the past as many retail stores adopted self-service merchandising.

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Source: Dicesare, C.B. Changes in the occupational structure of U.S. jobs. *Monthly Labor Rev.* 98(3):24-34. 1975 (Mar.).

## POVERTY IN 1973

The number of persons whose incomes were below the low-income or poverty threshold decreased in 1973 for the second straight year. About 23 million persons were classified as low income, 6.1 percent fewer than in 1972.

The low-income or poverty threshold is a measure of the income needed to provide families differing in size, composition, and place of residence a minimum adequate level of living. It is adjusted annually in line with the Consumer Price Index to allow for increasing costs. In 1973, the low-income threshold was \$4,540 for a nonfarm family of four, and \$3,871 for a farm family.

The number of white persons below the low-income level declined between 1972 and 1973 as it had the previous year. Although white persons made up almost two-thirds of all low-income persons in 1973, the poverty rate for white persons was considerably lower (8.4 percent) than the rate for black persons (31.4 percent) or for persons of Spanish origin (21.9 percent).

The number of low-income aged persons (65 and over) declined by 10 percent between 1972 and 1973. This continues a decrease observed the previous year and reflects substantial increases in Social Security benefits enacted since 1970. In 1973 there were 3.4 million persons 65 and over below the low-

income level. They accounted for about 15 percent of all poor persons.

Families headed by a woman made up 45 percent of all low-income families in 1973—up from 43 percent in 1972. Low-income black families were more likely to be headed by a woman than low-income white families—64 and 37 percent, respectively.

About 6 of every 10 low-income persons resided in metropolitan areas in 1973. A higher proportion of low-income blacks than whites lived in metropolitan areas (68 percent compared with 56 percent). Black low-income persons were disproportionately concentrated in the central cities whereas whites were distributed more equally between the central cities and the suburban rings. Of the 10 Federal regions, Dallas-Fort Worth and Atlanta had the highest concentration of poor persons (17.5 and 15.5 percent, respectively), and Chicago and Boston had the lowest (8.1 percent and 8.4 percent, respectively).<sup>1</sup>

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<sup>1</sup> The Federal regions are represented by the following cities: Boston, New York, Philadelphia, Atlanta, Chicago, Dallas-Fort Worth, Kansas City, Denver, San Francisco, and Seattle.

Source: U.S. Bureau of the Census, *Characteristics of the Low-Income Population: 1973*. (Current Population Reports, Series P-60, No. 98) Washington, D.C.: U.S. Government Printing Office, 1975.

## FARM POPULATION OF THE UNITED STATES 1973

Approximately 9½ million persons, or 4.5 percent of the total U.S. population, lived on farms in April 1973. Although this was an apparent drop in farm population from the previous year and a continuation of the long-time downward trend in the farm population, it was not a statistically significant change. The drop in farm population between 1970 and 1973 was the first time since the end of World War II that a 3-year interval did not result in a significant loss in the number of farm residents. This apparent stability, however, applied only to the white farm population; the number of persons of minority races living on farms continued to decline sharply.

Between 1970 and 1973 the number of farm children under 14 years old declined by 13 percent, paralleling the recent national decline in the birth rate which has extended to farm as well as nonfarm areas. In 1973 children under 14 years accounted for less than a fourth of the total farm population compared with a third in 1960. In the 3-year period between 1970 and 1973, there was no significant change in the number of farm persons 14 years and older.

About three-fifths of farm residents 14 years and older were in the labor force in 1973, either working or seeking work. Unemployment was low—1.9 percent among farm residents compared with 5.3 for the civilian



nonfarm population—reflecting, in part, the high incidence of multiple job holding among persons employed in agriculture. About half the farm resident labor force was engaged solely or primarily in nonagricultural pursuits. Although the same number were so employed in 1960, the decline in number of farm residents has meant an increase in the proportion of farm residents employed in non-agricultural industries—48 percent in 1973

compared with 33 percent in 1960. Nonagricultural employment in the farm resident labor force was more prevalent among women than among men. About two-thirds of the women were employed in nonagricultural industries in 1973 compared with two-fifths of the men.

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Source: U.S. Department of Commerce, Bureau of the Census, CURRENT POPULATION REPORTS, Series Census—ERS P-27, No. 45, September 1974.

## SOME NEW USDA PUBLICATIONS

(Please give your ZIP code in your return address when you order these.)

The following is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402:

- **BUYING A USED APPLIANCE.** PA 1102. 30 cents. November 1974.

Single copies of the following are available free from the U.S. Department of Agriculture, Washington, D.C. 20250. Please address your request to the office indicated.

From Office of Communication:

- **NUTRITION—FOOD AT WORK FOR YOU.** GS 1. Slightly revised January 1975.
- **GROWING AZALEAS AND RHODODENDRONS.** G 71. Revised February 1974.
- **EGGS IN FAMILY MEALS—A GUIDE FOR CONSUMERS.** G 103. Slightly revised January 1975.
- **VEGETABLES IN FAMILY MEALS: A GUIDE FOR CONSUMERS.** G 105. Slightly revised January 1975.
- **FRUITS IN FAMILY MEALS—A GUIDE FOR CONSUMERS.** G 105. Revised February 1975.
- **MILK IN FAMILY MEALS: A GUIDE FOR CONSUMERS.** G 127. Slightly revised December 1974.

From Information Division, Agricultural Marketing Service:

- **HANDLED WITH CARE—EGG PRODUCTS INSPECTION ACT.** AMS 560. November 1974.

From Economic Research Service, Division of Information:

- **BALANCE SHEET OF THE FARMING SECTOR 1974.** AB 376. September 1974.
- **BALANCE SHEET OF THE FARMING SECTOR BY VALUE OF SALES CLASS, 1960-73.** AB 376 Sup. 1. April 1975.
- **THE FOOD AND FIBER SYSTEM—HOW IT WORKS.** AB 383. March 1975.
- **SOCIAL AND ECONOMIC CHARACTERISTICS OF THE POPULATION IN METRO AND NONMETRO COUNTIES, 1970.** AER 272. March 1975.

From Special Reports Division, Office of Communication:

- **U.S. INTERNATIONAL AGRICULTURAL TRADE: ITS GROWING IMPORTANCE TO THE NATION'S ECONOMY, and QUESTIONS AND ANSWERS ON THE WORLD FOOD SITUATION.** (Set of six booklets prepared jointly by Economic Research Service and Foreign Agricultural Service. June to November 1974.)

# COST OF FOOD AT HOME

*Cost of Food at Home<sup>1</sup> Estimated for Food Plans at Three Cost Levels,  
April 1975, U.S. Average*

Sex-age groups	Cost for 1 week			Cost for 1 month		
	Low-cost plan	Moderate-cost plan	Liberal plan	Low-cost plan	Moderate-cost plan	Liberal plan
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
<b>FAMILIES</b>						
Family of 2: <sup>2</sup>						
20 to 54 years . . . . .	27.90	34.90	41.90	121.00	151.40	181.20
55 years and over . . . . .	24.90	30.60	36.60	107.50	132.90	158.40
Family of 4:						
Children, 1-2 and 3-5 years . . .	39.50	49.00	58.80	171.00	212.60	254.10
Children, 6-8 and 9-11 years . .	47.90	59.80	71.70	207.40	259.30	310.20
<b>INDIVIDUALS<sup>3</sup></b>						
Child:						
7 months to 1 year . . . . .	5.40	6.50	7.70	23.20	28.30	33.30
1 to 2 years . . . . .	6.40	7.80	9.30	27.70	33.90	40.20
3 to 5 years . . . . .	7.70	9.50	11.40	33.30	41.10	49.20
6 to 8 years . . . . .	10.00	12.50	14.90	43.30	54.00	64.60
9 to 11 years . . . . .	12.50	15.60	18.70	54.10	67.70	80.90
Male:						
12 to 14 years . . . . .	13.30	16.60	19.80	57.60	71.90	85.90
15 to 19 years . . . . .	14.60	18.30	21.90	63.40	79.10	94.90
20 to 54 years . . . . .	14.10	17.70	21.30	61.00	76.70	92.10
55 years and over . . . . .	12.40	15.30	18.40	53.60	66.50	79.60
Female:						
12 to 19 years . . . . .	11.80	14.60	17.40	51.20	63.30	75.30
20 to 54 years . . . . .	11.30	14.00	16.80	49.00	60.90	72.60
55 years and over . . . . .	10.20	12.50	14.90	44.10	54.30	64.40
Pregnant . . . . .	14.00	17.20	20.40	60.50	74.50	88.50
Nursing . . . . .	14.80	18.40	21.90	64.30	79.80	94.90

<sup>1</sup> These estimates were computed from quantities in food plans published in *Family Economics Review*, Winter 1975. The costs of the food plans were first estimated by using the average price per pound of each food group paid by urban survey families at three selected food cost levels in 1965-66. These prices were adjusted to current levels by use of *Retail Food Prices by Cities* released periodically by the Bureau of Labor Statistics.

<sup>2</sup> Ten percent added for family size adjustment. See footnote 3.

<sup>3</sup> The costs given are for individuals in 4-person families. For individuals in other size families, the following adjustments are suggested: 1-person—add 20 percent; 2-person—add 10 percent; 3-person—add 5 percent; 5-person—subtract 5 percent; 6-or-more-person—subtract 10 percent.



# CONSUMER PRICES

*Consumer Price Index for Urban Wage Earners and Clerical Workers*

(1967 = 100)

Group	Apr. 1975	Mar. 1975	Feb. 1975	Apr. 1974
All items . . . . .	158.6	157.8	157.2	144.0
Food . . . . .	171.2	171.3	171.6	158.6
Food at home . . . . .	171.0	171.4	172.0	159.4
Food away from home . . . . .	172.2	171.3	170.5	155.6
Housing . . . . .	164.7	163.6	162.7	146.0
Shelter . . . . .	167.6	166.6	165.8	150.2
Rent . . . . .	135.9	135.5	135.1	128.8
Homeownership . . . . .	179.4	178.2	177.3	158.2
Fuel and utilities . . . . .	164.6	163.0	162.2	147.0
Fuel oil and coal . . . . .	229.0	228.3	229.5	206.5
Gas and electricity . . . . .	166.3	164.0	162.7	142.0
Household furnishings and operation . . . . .	156.8	155.6	154.7	134.0
Apparel and upkeep . . . . .	141.3	140.9	140.2	133.6
Men's and boys' . . . . .	142.2	141.3	140.6	134.2
Women's and girls' . . . . .	136.0	136.1	135.4	132.4
Footwear . . . . .	144.4	144.0	143.0	136.3
Transportation . . . . .	146.2	144.8	143.5	134.4
Private . . . . .	145.5	144.0	142.5	133.1
Public . . . . .	152.4	152.3	152.3	146.3
Health and recreation . . . . .	152.1	151.1	150.2	136.3
Medical care . . . . .	165.8	164.6	163.0	145.6
Personal care . . . . .	149.5	148.9	147.8	133.1
Reading and recreation . . . . .	143.5	142.0	141.8	130.4
Other goods and services . . . . .	146.8	146.5	145.9	133.6

Source: U.S. Department of Labor, Bureau of Labor Statistics.

*Index of Prices Paid by Farmers for Family Living Items*

(1967 = 100)

Item	May 1975	Apr. 1975	Mar. 1975	May 1974	Apr. 1974	Mar. 1974
All items . . . . .	175	173	173	163	157	156
Food and tobacco . . . . .	---	---	176	---	---	161
Clothing . . . . .	182	---	---	---	---	162
Household operation . . . . .	---	170	---	---	---	149
Household furnishings . . . . .	---	153	---	---	---	135
Building materials, house . . . . .	---	---	183	---	---	169

Source: U.S. Department of Agriculture, Statistical Reporting Service.

Note: Survey months for prices paid by farmers for clothing, household operation, and household furnishings have been changed. The index for clothing is now being published for February, May, August, and November. Indexes for household operation, and household furnishings are being published for January, April, July, and October.

*FAMILY ECONOMICS REVIEW*  
*SUMMER 1975*

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